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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/709,921	06/06/2004	Yung-Yi LIU	NANP0002USA	3920
27765	7590	06/06/2006		
NORTH AMERICA INTELLECTUAL PROPERTY CORPORATION P.O. BOX 506 MERRIFIELD, VA 22116			EXAMINER ECHELMeyer, ALIX ELIZABETH	
			ART UNIT 1745	PAPER NUMBER

DATE MAILED: 06/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/709,921	Applicant(s) LIU ET AL.	
	Examiner Alix Elizabeth Echelmeyer	Art Unit 1745	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 May 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) 10-15 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Claims 10-15 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected group, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on May 17, 2006.

Claim Objections

2. Claim 1 is objected to because of the following informalities: it contains several instances where the verb and noun are not in agreement. For example, in lines 7-8, through holes ... *are* electrically connected, not "is". This occurs also on lines 6, 7, 18, and 19. Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 4, and 9 are rejected under 35 U.S.C. 102(b) as being anticipated by Pratt et al. (US Patent Number 6,127,058).

Pratt et al. teach a planer fuel cell having a membrane electrode assembly, MEA, with current collectors on either side. The current collectors are supported by a plastic frame (Figure 1; column 2 lines 38-53).

Pratt et al. further teach that each current collector has an interconnect means to make an electrical connection with the exterior of the fuel cell (Figure 2; column 3 lines 40-67; column 4 lines 1-5). This interconnect can be molded as part of the frames, like the through holes of the instant application. The interconnect means are outside the perimeter of the MEA, as also indicated in the instant application. Pratt et al. teach that the anode and cathode are attached to the MEA prior to assembly, while Applicants teach that the anode and cathode are connected to the current collector. However, once the fuel cell is assembled, the anodes and cathodes will be in contact with both the MEA and the current collectors.

Pratt et al. teach that each unit is isolated from its neighbors by a wall (column 4 lines 30-38). The units are connected in series (column 4 lines 43-44). Also taught is a series of channels or distribution means in the frame to allow fuel gas to be distributed to unit cells. Gas inlet means provide porting for fuel and oxidant (column 4 lines 58-66).

Regarding claim 4, Pratt et al. teach a solid electrolyte polymer electrolyte solid electrolyte (column 2 lines 54-55).

As for claim 9, the method of assembly is not given patentable weight since the final assembled product as claimed is anticipated by the final assembled product as taught by Pratt et al.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

Art Unit: 1745

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 2 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pratt et al. in view of Kim et al. (US Patent Number 6,706,564).

The teachings of Pratt et al. is discussed above are incorporated herein.

Pratt et al. teach the cathode electrode area but fail to teach the copper layers and conductive protection layer made of Ni/Au.

Kim et al. teach the use of several layers of copper, applied and removed selectively according to the desired final product. Ni/Au plating is used on top of the copper layers in order to form a bonding connection (column 2 lines 29-67). Kim et al. also teach that this structure overcomes problems such as difficult fabrication, damage to previously formed layers, and deterioration of quality (column 1 lines 47-52, 61-67).

It would be desirable to use the copper-layered structure of Kim et al. as the cathode electrode area of Pratt et al. in order to overcome problems such as difficult fabrication, damage to previously formed layers, and deterioration of quality.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use the layered structure of Kim et al. in the fuel cell of Pratt et al. in order to avoid such problems as deterioration of quality.

5. Claims 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pratt et al. in view of Juskey et al. (US Pre-Grant Publication 2002/0043402).

The teachings of Pratt et al. as discussed above are incorporated herein.

Pratt et al. teach a bonding sheet but fail to teach that it is made of Prepreg B-stage resin or the curing parameters of that resin.

Regarding claim 5, Juskey et al. teach a sheet made of B-stage prepreg having an opening. An object is placed in the opening and then heat is used to solidify the resin, bonding the object to the resin sheet (Figure 1; abstract).

It would be advantageous to use a resin that is not fully cured, such as that taught by Juskey et al., as the bonding sheet for the MEA of Pratt et al. because it would allow for greater flexibility in assembly of the fuel cell since the MEA and bonding sheet could be bonded after much of the assembly has already taken place.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use a prepreg B-stage resin like the one taught by Juskey et al. in the fuel cell of Pratt et al. in order to allow for greater flexibility during assembly.

As for claim 6, the amount of curing of the B-stage resin prior to use in the fuel cell would affect the curing time and temperature needed to fully cure the sheet. Since the amount of curing prior to use can be decided by the manufacturer, the prepreg B-stage resin of Juskey et al. has the capability of being fully cured according to the parameters of claim 6.

6. Claims 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pratt et al. in view of Farnworth et al. (US Patent Number 6,451,624).

The teachings of Pratt et al. as discussed above are incorporated herein.

Pratt et al. teach a first substrate made of polymeric material, but fail to teach that substrate being made of glass fiber reinforced polymeric materials.

Farnworth et al. teach the use of glass fiber reinforced polymeric materials in the insulating layer of a package because it is insulating and can be formed as desired, punched, machined, etc. (column 9 lines 7-16). Farnworth et al. also teach that exemplary materials include FR-4 and FR-5.

It would be desirable to use the glass fiber reinforced polymeric material of Farnworth et al. as the first substrate of Pratt et al. because it is insulating and can be formed as desired.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use the glass fiber reinforced polymeric material of Farnworth et al. in the fuel cell of Pratt et al. because it is insulating and can be formed as desired.

Double Patenting

7. Claims 1, 2, and 4-9 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-8 of copending Application No. 10/908,158. Although the conflicting claims are not identical, they are not patentably distinct from each other because Application No. 10/908,158 differs only in that the active anode layers are also covered by a conductive protection layer.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alix Elizabeth Echelmeyer whose telephone number is 571-272-1101. The examiner can normally be reached on Mon-Fri 7-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick J. Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


PATRICK JOSEPH RYAN
SUPERVISORY PATENT EXAMINER

Alix Elizabeth Echelmeyer
Examiner
Art Unit 1745

aee